2020 Southwest Onsite Wastewater Conference "From Vision to Action"

Sponsored by ACDEHSA
Arizona County Directors of Environmental Health Services Association

Wednesday & Thursday - January 29th & 30th, 2020
Riverside Resort Hotel
1650 South Casino Drive
Laughlin, NV 89029

Register at www.SouthwestConference.net

Preconference Training on Monday & Tuesday
January 27th & 28th, 2020

Register at https://extension.arizona.edu/onsite-wastewater

2020 Southwest Onsite Wastewater Preconference

Monday, January 27, 2020			
Time	**Topic**	**Topic Summary**	**Speaker**
8:00 AM To 5:00 PM	NAWT Inspection Training & Certification	Whether you are an experienced industry professional or just starting out in the business, you will find a great deal of value in the National Association of Wastewater Transporters, Inc. (NAWT) Inspection Training & Certification course. It is a comprehensive onsite sewage treatment systems course covering terminology, treatment, tanks, construction methods, and application and pass a rigorous exam to receive national certification. Your successful completion of the training will allow you to be recognized as a national certified inspector by NAWT you will be listed on a national registry of certified industry professionals for two years and is part of the eligibility to becoming an inspector the Arizona Transfer of Property Inspection program.	Dave Gustafson, PE Registration or Information: Aaron Tevik 520-621-3691, atevik@email.arizona.edu

Tuesday, January 28, 2020			
Time	**Topic**	**Topic Summary**	**Speaker**
8:00 AM To 5:00 PM	NAWT Inspection Training & Certification	Whether you are an experienced industry professional or just starting out in the business, you will find a great deal of value in the National Association of Wastewater Transporters, Inc. (NAWT) Inspection Training & Certification course. It is a comprehensive onsite sewage treatment systems course covering terminology, treatment, tanks, construction methods, and application and pass a rigorous exam to receive national certification. Your successful completion of the training will allow you to be recognized as a national certified inspector by NAWT you will be listed on a national registry of certified industry professionals for two years and is part of the eligibility to becoming an inspector the Arizona Transfer of Property Inspection program.	Dave Gustafson, PE

Tuesday, January 28, 2020			
Time	**Topic**	**Topic Summary**	**Speaker**
4:00 – 8:00 PM		**Exhibitor Set-up**	
5:00 – 8:00 PM		**Conference Registration Desk Open**	

2020 Southwest Onsite Wastewater Conference

Wednesday, January 29, 2020			
Time	**Topic**	**Title**	**Speaker**
7:00 – 8:00 AM		**Registration**	
8:00 – 8:10 AM	President's Welcome	Welcome from the President of ACDEHSA	Cecil Newell, RS/REHS Yavapai County
8:10-9:00 am	Keynote:	Virginia's Onsite Sewage Program - Moving Toward Privatization and Performance: The Good, The Bad, and The Ugly	Marcia Degen, PhD, PE Virginia Department of Health
9:00 – 9:50 AM	Greywater	Green Your Landscape with Greywater: Costs, codes, systems, and strategies for managing this unique alternate water supply	Laura Allen Greywater Action
9:50–10:20AM		**Break – visit over 20 exhibitors**	
10:20–11:10 AM	ADEQ Vision	ADEQ's Vision for the Onsite Wastewater Industry.	Mr. Trevor Baggiore, Water Quality Division Director, ADEQ
11:10 – 12:00PM	Subsurface Treatment	Subsurface Fates of Contaminants from Onsite Septic Systems	Sergio M. Abit Jr., PhD Oklahoma State University
12:00 – 1:10 PM		**Lunch and visit over 20 exhibitors**	
1:10 – 2:00 PM	Community Level Considerations	Barriers to Using Decentralized Wastewater Community Solutions, 2005 - 2020	Mary K. Clark, RS Consultant
2:00 – 2:50 PM	Non-Potable Water	Update on Risk-Based Guidance for Onsite Non-Potable Water Systems	Michael Jahne, PhD US EPA
2:50 – 3:20 PM		**Break – visit over 20 exhibitors**	
3:20 – 4:10 PM	Large Systems	Large Onsite Wastewater Systems: Design & Engineering Considerations. An overview of design options for onsite wastewater system over 3,000 gpd, for various types of developments along with examples.	Mark Brooks, PE Consultant
4:10 – 5:00 PM	Alternative Systems	Design of Advanced onsite wastewater systems to address areas with significant soil and site limitations.	Sergio M. Abit Jr., PhD Oklahoma State University
5:00 – 6:30 PM		**Mixer – Hors d'oeuvres courtesy of ACDEHSA and No Host Bar**	

2020 Southwest Onsite Wastewater Conference

Thursday, January 30, 2020			
Time	**Topic**	**Title**	**Speaker**
7:00 – 8:00 AM		**Registration**	
8:00 - 8:50 AM	Non-water Toilet	Non-Sewered Sanitation Devices – A new ISO Standard for a Reinvented Toilet	Edward R. Osann Natural Resources Defense Council
8:50 – 9:40 AM	Treatment Media	Media Filter Treatment Mechanisms and Applications	Colin Bishop, RS / REHS Anua
9:40 – 10:10 AM		**Break – visit over 20 exhibitors**	
10:10 – 11:00 AM	Reclaimed Water	This presentation will cover Colorado's implementation of reclaimed water regulations for decentralized/localized treatment facilities and provide a case study for one of the early applicants, Denver Water.	Emily C. Wong, PE Colorado Dept. of Public Health and Environment Austa Parker Denver Water
11:00 – 11:50 PM	Pathogen	Pathogen Log-Reduction Targets: A Risk-Based Framework for Water Reuse	Michael Jahne, PhD US EPA
11:50 – 1:00 PM		**Lunch and visit over 20 exhibitors**	
1:00 - 1:50 PM	Soil Treatment	Rocky Soils and Effluent Treatment; a Colorado Perspective	Chuck Cousino, REHS Colorado Dept. of Public Health and Environment.
1:50 – 2:20 PM		**Break – visit exhibits**	
2:20 – 3:10 PM	Standards	Conserve and Protect: NSF Onsite Wastewater Treatment System Standards and Testing	Derek Deland, MPH, REHS/RS NSF International
3:10 – 4:00 PM	Solids Handling	A new transformative technology for treating liquid septage and liquid sludge to eliminate hauling water contained in septage, wastewater and industrial sludges and slurries to disposal	Akrum H. Tamimi, PhD University of Arizona
4:00 PM		**Conference Ends. Pick up certificates.**	

2020 Southwest Onsite Wastewater Conference

EXTENDED SUMMARY / ABSTRACTS:

Marcia Degen, PhD, PE Technical Services Manager
Onsite Sewage & Water
Virginia Department of Health

In the mid 1990's, Virginia began accepting private sector designs for onsite sewage systems. The Virginia Department of Health (VDH) had been the sole designer for residential onsite sewage systems, but backlogs created the need for private sector designs. As VDH re-evaluated its priorities as a public health agency, it became clear that VDH needed to spend more time on surveillance, compliance, and enforcement and not on design, to meet its goal of protecting public health. Virginia now has an onsite industry that is served by licensed designers, installers, and operators. A performance regulation was adopted for alternative systems which includes an operation and maintenance requirement. VDH is currently only providing designs of conventional onsite systems when a defined hardship is documented. This presentation will describe the VDH journey and discuss the good, the bad, and the ugly of the current program.

Laura Allen
Greywater Action

It makes sense to reuse water we already have, especially in dry climates. This greywater can be an excellent source of irrigation water, and in some instances can be used for other nonpotable needs. Learn about popular greywater systems- from very simple to more complex, their associated costs, permitting requirements, and special considerations to safely manage and utilize this alternate water supply.

Sergio M. Abit Jr., PhD
Department of Plant and Soil Sciences, Oklahoma State University

On-Site Sewage Facilities (OSSF) are designed to treat key pollutants in wastewater before effluent is released to the environment. While the complete removal of pollutants is ideal, OSSFs are mainly designed to reduce the concentration of certain pollutants to levels that pose very minimal risk when the effluent is ultimately dispersed. This means that when treated effluent eventually find its way to the soil treatment area (STA), it will still have pollutants like nitrogen, phosphorus, pathogenic bacteria, and other pollutants. The decision related to where and how to disperse treated effluent to the environment largely depends on soil properties at the STA. Whether the pollutants in the effluent are sorbed, transformed, and/or rendered immobile will largely depend on the treatment ability and capacity of the soil. This talk will start with a discussion about the negative effects of key pollutants in OSSF effluents. It will then be followed with detailed discussions about the fates in the soil of nitrogen, phosphorus and pathogenic bacteria. At the end of the talk, participants are expected to have a better understanding of the fates of OSSF pollutants in the soil and to gain an improved appreciation of the ability of the soil to accomplish treatment.

Mary K. Clark, RS
Consultant to
Vermont DEC and USEPA

In the early 2000's EPA conducted a study to identify the key barriers communities face when planning and implementing a decentralized wastewater project. The four barriers included: engineering incentives to go too big; engineering/public lack of knowledge of community decentralized systems; an unfavorable regulatory system for design, permitting, technology and funding; and lack of watershed and systems thinking. We'll discuss what barriers existed, what ones remain, and on-going efforts to solve them.

Michael Jahne, PhD
Environmental Engineer
Office of Research and Development
US EPA

This presentation will provide a brief overview of WE&RF's ""Risk-Based Framework for the Development of Public Health Guidance for Decentralized Non-Potable Water Systems", followed by an update on ongoing research and development to support the further advancement of fit-for-purpose onsite water programs.

In 2017, WE&RF published the report "Risk-Based Framework for the Development of Public Health Guidance for Decentralized Non-Potable Water Systems", which provides pathogen log-reduction targets (LRTs) for onsite water reuse that have since been integrated into various state and local regulatory proposals. This presentation will provide a brief overview of the original framework, followed by an update on ongoing research and development to support the further advancement of fit-for-purpose onsite water programs.

Mark Brooks, PE
Consultant

Covers engineer design options with respect to collection systems, pretreatment systems, and drainfield types. For each design component we will discuss considerations with regard to system type, cost, operation and maintenance.

2020 Southwest Onsite Wastewater Conference

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Sergio M. Abit Jr., PhD
Department of Plant and Soil Sciences, Oklahoma State University

Advanced systems are usually installed in areas with significant soil and site limitations. Specifics of system design are usually proprietary, but all involve one or a combination of the following: increase in contact with surfaces, modifying aeration status, addition of a substrate, and/or increase water-microbe contact. All of these are designed to manipulate microbial activity that causes enhanced decomposition of organic particulates, transformation of contaminants and even deactivation of some pathogens. This talk will start with a discussion of site and soil conditions that leads to decision to install an advanced system. Detailed discussions on various processes that goes on in a typical advanced system treatment train will then follow. Particular attention will be given to microbial processes that affects the fates of organic particulates and of contaminants nitrogen, phosphorus and pathogenic bacteria as they move through the system.

Edward R. Osann
Senior Water Policy Analyst
Health Communities Program
Natural Resources Defense Council

Delegates from Canada, the US, and some 30 other countries have been collaborating for the last two years to develop a new ISO standard for non-sewered sanitation devices. Intended to meet critical public health needs in developing countries with limited water and wastewater infrastructure, this new standard also carries important implications for water and wastewater management in North America. From national parks to suburban shopping malls, high-tech toilets meeting the new ISO standard could upend our approach to sanitation and our expectations about future water demands and water-related infrastructure.

This presentation will consist of three parts:

(a) a brief discussion of the vision behind a “reinvented” toilet;
(b) an outline of the forthcoming ISO Standard 30500, including scope, performance requirements, and test procedures; and
(c) an overview of some of the technologies and approaches that are currently in development and field testing.

Participants will be challenged to consider where, in their own community, sanitation devices that require no permanent connection to water and sewer lines would fill a useful purpose.

Colin Bishop, RS / REHS
Chief Executive Officer
Anua

Various natural and synthetic medias have been successfully utilized to treat sewage for over 100 years. Basic treatment mechanisms and applications for various facility types will be discussed. A look at the future role of media types for the clean water paradigm will be explored.

Emily C. Wong, PE
Senior Review Engineer
Colorado Department of Public Health and Environment

Austa Parker
Lead Planner
Denver Water

Under the One Water umbrella, the wastewater treatment industry is pursuing efficiency improvements for wastewater treatment and disposal. One method for improving efficiency is using decentralized/localized treatment systems with onsite reuse. In Colorado, recent changes (2018) to our reclaimed water regulation now allow reclaim water from localized systems for new uses including indoor toilet and urinal flushing. The regulations define required log inactivation targets for virus, protozoa, and bacteria based on reuse category. In addition, for indoor toilet flushing, the regulation includes other requirements including a public education program, chlorine residual in the distal ends of the distribution system, cross connection control measures, continuous monitoring and more. From a regulatory perspective, the log inactivation target paradigm creates many challenges including how to validate and assign log credits.

The presentation covers Colorado's progress on implementation of the new regulation, and a case study of one of the first treatment facilities to be approved for indoor toilet and urinal flushing use for the Denver Water Administration Building.

2020 Southwest Onsite Wastewater Conference

EXTENDED SUMMARY / ABSTRACTS:

Michael Jahne, PhD
Environmental Engineer
Office of Research and Development
US EPA

Pathogen log-reduction targets (LRTs) have been proposed as a risk-based framework for determining appropriate water reuse treatment levels. This presentation will provide an overview of the quantitative microbial risk assessment (QMRA) process used to determine LRTs as well as relevant context and considerations for practical implementation of the LRT framework.

Pathogen log-reduction targets (LRTs) have been proposed as a risk-based framework for determining appropriate water reuse treatment levels. Unlike traditional guidelines based on fecal indicator bacteria (FIB), LRTs provide fit-for-purpose specification based on the given water source and desired reuse application. In addition, they directly consider viral and protozoan pathogens that drive infection risk in most water reuse systems, rather than relying on poorly-correlated FIB markers. This presentation will provide an overview of the quantitative microbial risk assessment (QMRA) process used to determine LRTs as well as relevant context and considerations for practical implementation of the LRT framework.

Chuck Cousino, REHS
On-site Wastewater Treatment System Coordinator
Colorado Dept. of Public Health and Environment.

This presentation will provide information relative to how the on-site wastewater regulations in the State of Colorado address sites/soils with a high content of rock as well as the requirements for the treatment of effluent applied to these sites.

- Why soils with high rock content are such a big issue in Colorado
- How the regulations to address the various sizes and quantity of rock within a soil profile were developed
- What existing research was used to determine the different categories of rock soils

This presentation will address how two separate classifications of sand media were developed, and the subsequent availability of each product. It will also address what types of proprietary treatment components are accepted and the process for review of such products.

Derek Deland, MPH, REHS/RS
NSF International

Since the 1970s we have trended away from working solely to dispose of onsite wastewater and toward a focus on treatment prior to dispersal into the environment. This leads to safer and healthier environments as BOD, turbidity and nitrogen are reduced. Additionally, with water demands rising, the implementation of reuse systems has become significant. NSF standards are developed to help ensure that treatment technologies and systems are designed and function to safely and effectively treat onsite wastewater. This presentation aims to increase attendees' knowledge of NSF/ANSI 40 (onsite treatment), NSF/ANSI 245 (nitrogen reduction) and NSF/ANSI 350 (water reuse). The standards and certification process will be discussed, including performance testing details such as influent and effluent characteristics, dosing volume, sampling days, and stress loading.

Akrum H. Tamimi, PhD
Department of Biosystems Engineering
University of Arizona

To eliminate hauling water contained in septage, wastewater and industrial sludges and slurries to landfills and to agricultural land and to generate reusable dry organic final product; we are introducing a new technology that is a game changer. The technology is simple and has low energy requirements.

A new transformative technology for treating liquid septage and liquid sludge to Class A level. The two-stage technology consists of:

i) dewatering liquid sludge with average total solids ranging from 0.2% to 7% or higher to sludge cake with percent total solids ranging from 15% to 25%; and

ii) dehumidifying, i.e. drying, the dewatered sludge cake at low temperature utilizing heat pump dehumidification principles to 90% total solids.

The final product is a pasteurized Class A Biosolids with no pathogens that meets vector attraction reduction requirements as per U.S. EPA Rule 503 requirements.
